

REMARKS

The above amendment is submitted to place the claims in substantially the same conditions as to the claims which have been amended under Article 34 in the international application and to remove improper multiple dependency of the claims. An English translation of the annexes of the PCT international preliminary examination report is enclosed. Early and favorable action is awaited.

In the event there are any additional fees required, please charge our Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN, HATTORI,  
McLELAND & NAUGHTON, LLP



Ken-Ichi Hattori  
Reg. No. 32,861

Atty. Docket No. 011701  
Suite 1000  
1725 K Street, N.W.  
Washington, D.C. 20006  
Tel: (202) 659-2930  
KH/yap  
Enclosures: Substitute sheets

VERSION WITH MARKINGS TO SHOW CHANGES MADE

The following claims have been amended as follows:

1. (Amended) A liquid crystal display device comprising a liquid crystal display panel in which a first substrate formed with a signal electrode and a second substrate formed with a counter electrode on one surface respectively are coupled together, with said signal electrode and said counter electrode opposed each other, with a fixed gap therebetween provided by interposing a sealing part at an outer peripheral part of a display area, and a liquid crystal layer is provided in the gap, wherein

said signal electrode is composed of a surrounding electrode formed over almost the whole area of said display area, a pattern electrode isolatedly formed within said surrounding electrode, and a wiring electrode formed across said surrounding electrode with a gap provided between said wiring electrode and said surrounding electrode in order to selectively apply voltage to said pattern electrode,

said counter electrode is provided over the whole area of said display area to face said signal electrode,

said first substrate, said second substrate, said signal electrode and said counter electrode are all transparent,

said liquid crystal layer is a scattering type liquid crystal layer which changes in transmittance and scattering rate depending on existence or absence of application of voltage by means of said signal electrode and said counter electrode, in which transparency increases in a part to which voltage is applied, and

a light source part means which emits linearly polarized light is disposed outside a peripheral part of said liquid crystal display panel, and at least a part of said sealing part facing the light source part means has a light transmitting property to allow linearly polarized light emitted from said light source part means to pass through said sealing part and enter said liquid crystal layer.

2. (Amended) A liquid crystal display device comprising a liquid crystal display panel in which a first substrate formed with a signal electrode and a second substrate formed with a counter electrode on one surface respectively are coupled together, with said signal electrode and said counter electrode opposed each other, with a fixed gap therebetween provided by interposing a sealing part at an outer peripheral part of a display area, and a liquid crystal layer is provided in the gap, wherein

    said signal electrode is composed of a pattern electrode isolatedly formed within said display area, and a wiring electrode formed across said display area in order to selectively apply voltage to said pattern electrode,

    said counter electrode is provided in an area to face said pattern electrode,

    said first substrate, said second substrate, said signal electrode and said counter electrode are all transparent,

    said liquid crystal layer is a scattering type liquid crystal layer which changes in transmittance and scattering rate depending on existence or absence of application of voltage by means of said signal electrode and said counter electrode, in which a scattering degree increases in a part to which voltage is applied, and

a light source part means which emits linearly polarized light is disposed outside a peripheral part of said liquid crystal display panel, and at least a part of said sealing part facing the light source part means has a light transmitting property to allow linearly polarized light emitted from said light source part means to pass through said sealing part and enter said liquid crystal layer.

3. (Amended) A liquid crystal display device according to claim 1, wherein said liquid crystal display panel, in which an outside of said second substrate is a visible side, always presents a condition outside said first substrate to the visible side,

a luminosity of a scattering part, where the transparency does not increase, of said liquid crystal layer becomes higher than luminosities of other parts while said a light source part of said light source means is turned on, and

the luminosity of said scattering part of said liquid crystal layer becomes lower than the luminosities of the other parts while said light source part is turned off.

4. (Amended) A liquid crystal display device according to claim 2, wherein said liquid crystal display panel, in which an outside of said second substrate is a visible side, always presents a condition outside said first substrate to the visible side,

a luminosity of a scattering part, where the scattering degree is increased, of said liquid crystal layer becomes higher than luminosities of other parts while said a light source part of said light source means is turned on, and

the luminosity of said scattering part of said liquid crystal layer becomes lower than the luminosities of the other parts while said light source part is turned off.

5. (Amended) A liquid crystal display device according to claim 1, wherein  
~~a collimate lens for making light from said light source part a ray parallel to said first substrate and said second substrate of said liquid crystal display panel is provided between said light source means comprises a light source part and a polarization separating device disposed between the light source part and~~ an outer peripheral part of said liquid crystal display panel and ~~said light source part~~.

6. (Amended) A liquid crystal display device according to claim 2, wherein  
~~a collimate lens for making light from said light source part a ray parallel to said first substrate and said second substrate of said liquid crystal display panel is provided between said light source means comprises a light source part and a polarization separating device disposed between the light source part and~~ an outer peripheral part of said liquid crystal display panel and ~~said light source part~~.

7. (Amended) A liquid crystal display device according to claim + 5, wherein  
~~a polarization separating device an optical means composed of a convex lens or a diffuser is provided between an outer peripheral part of said liquid crystal display panel and said light source part said light source part of said light source means and said polarization separating device.~~

8. (Amended) A liquid crystal display device according to claim 2 6, wherein  
~~a polarization separating device~~ an optical means composed of a convex lens or a diffuser  
is provided between ~~an outer peripheral part of said liquid crystal display panel and said light source~~  
part said light source part of said light source means and said polarization separating device.

9. (Amended) A liquid crystal display device according to claim 7 5, wherein  
said scattering type liquid crystal layer of said liquid crystal display panel is a mixed liquid  
crystal layer composed of transparent solid substances and a liquid crystal, which is produced by  
applying ultraviolet light to liquid composed of liquid crystal and organic monomers, and  
said polarization separating device is disposed so that a transmission axis thereof almost  
matches with a direction in which a difference between a refractive index of said transparent solid  
substance and a refractive index of said liquid crystal of said mixed liquid crystal layer is small.

10. (Amended) A liquid crystal display device according to claim 8 6, wherein  
said scattering type liquid crystal layer of said liquid crystal display panel is a mixed liquid  
crystal layer composed of transparent solid substances having alignment properties and a liquid  
crystal, which is produced by applying ultraviolet light to liquid made by mixing liquid crystal  
polymers into liquid crystal and organic monomers, and  
said polarization separating device is disposed so that a transmission axis thereof almost  
matches with a direction in which a difference between a refractive index of said transparent solid  
substance and a refractive index of said liquid crystal of said mixed liquid crystal layer is small.

19. (Amended) A liquid crystal display device according to claim 3 5, wherein light intensity change means is provided which controls increase and decrease of an intensity of light to make incident on said liquid crystal display panel from said light source part in accordance with an intensity of light incident on said liquid crystal display panel from outside said first substrate is provided in said light source means.

20. (Amended) A liquid crystal display device according to claim 4 6, wherein light intensity change means is provided which controls increase and decrease of an intensity of light to make incident on said liquid crystal display panel from said light source part in accordance with an intensity of light incident on said liquid crystal display panel from outside said first substrate is provided in said light source means.

21. (Amended) A liquid crystal display device according to claim 19, wherein said light intensity change means comprises a liquid crystal shutter composed of a liquid crystal cell provided between said liquid crystal display panel and said light source and polarizers polarization separating device and the light source part, a polarizer arranged on both sides thereof a light source part side of the liquid crystal cell, an exposure meter for detecting the intensity of the light incident from outside said first substrate, and a liquid crystal driving circuit for changing voltage applied to said liquid crystal cell in accordance with an output from said exposure meter.

22. (Amended) A liquid crystal display device according to claim 20, wherein  
said light intensity change means comprises ~~a liquid crystal shutter composed of~~ a liquid  
crystal cell provided between said ~~liquid crystal display panel~~ and said light source and polarizers  
polarization separating device and the light source part, a polarizer arranged on ~~both sides thereof~~  
a light source part side of the liquid crystal cell, an exposure meter for detecting the intensity of the  
light incident from outside said first substrate, and a liquid crystal driving circuit for changing  
voltage applied to said liquid crystal cell in accordance with an output from said exposure meter.

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